

PLACING OF DISHES.

Commonwealth of Pennsylvania.

DEPARTMENT OF AGRICULTURE.

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BULLETIN No. 188.

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# PRINCIPLES OF DOMESTIC SCIENCE,

APPLIED TO

PREPARATION OF FOOD.

BY

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HARRISBURG:

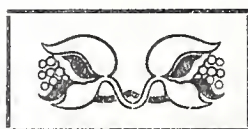
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## SUMMARY OF CONTENTS.

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	Page.
Preface. ....	5
Introduction, ....	7
Classes of Foods, ....	8
Wise Choice of Foods, ....	8
Tissue-building Foods, ....	8
Heat and Energy-giving Foods, ....	9
Mineral Salts, ....	10
General Value of Fruits and Vegetables, ....	10
Water as a Food Principle, ....	10
Value, ....	10
Choice of Food to Suit Conditions, ....	11
Climatic Conditions, ....	11
Occupation, ....	12
Age, ....	12
Abnormal Conditions, ....	12
Combination of Foods, ....	13
Preparation of Foods and Vegetables, ....	13
Potatoes, ....	13
Preparation for the Table, ....	14
Plain Boiled, ....	14
Creamed, ....	14
Baked, ....	15
Mashed, ....	15
Cooking Rice, ....	16
Cooking Macaroni, ....	17
Oatmeal, ....	18
Directions for Cooking, ....	18
Cabbage, ....	19
Peas, ....	20
Dried Peas and Beans, ....	20
Vegetable Soup, ....	20
Raw Vegetables as Food, ....	21
Daily Meat Supply, ....	21
Choice of Meat, ....	22
Steaks, ....	22
Roasts, ....	23
Broiled Steak, ....	24
Meat Substitutes, ....	25
Preparing a Fowl for Roasting, ....	25
Standard Ways of Preparing Eggs, ....	26
Beans as a Substitute for Meat, ....	28
Bread, ....	30
The Ideal Loaf, ....	31
Directions for Making Bread, ....	32
Precautions, ....	32
Simple Desserts, ....	33
Beverages, ....	35
Value of Fruits as Food, ....	38
Canning and Preserving, ....	39
Serving of Meals, ....	41



## PREFACE.

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Of all the important questions requiring our consideration, there are none affecting our condition for time more important than those relating to our food. "What shall we eat?" and "What shall we drink?" have been principally among the questions of the ages, and when supplemented with the question "Wherewithal shall we be clothed," they come near constituting the sum total of all that concerns a large proportion of our race.

Realizing the great importance of proper diet in building up strong and healthy bodies for the young and the preservation of health and comfort for both young and old, and wishing to afford all the help possible in this line to the busy homekeepers of our land, I have secured the preparation of this Bulletin by one whose training for the position of a Teacher of Domestic Economy in one of the leading Agricultural Colleges of the country, has furnished special qualifications for the work.

N. B. CRITCHFIELD,  
*Secretary of Agriculture.*





# DOMESTIC SCIENCE PRINCIPLES,

Applied to Three Simple Daily Meals.

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## INTRODUCTION.

It is the purpose of this bulletin to consider the direct application of Domestic Science principles, to the best preparation of three simple meals each day. The aim is, to present suggestions which are of practical value to any housekeeper; and which are, at the same time, based upon scientific investigation.

The present line of study and thought is constantly calling attention to the fact that the wise feeding of the family, reacts not only upon the physical development of the family, but upon the mental as well. We also feel assured that immorality and crime are very often directly traceable to a lack of wholesome food, properly served.

With these thoughts in mind, this bulletin urges every housekeeper to call, not only the hands, but the head and heart into service, and make the feeding of the family a process which is beyond criticism, because it does not fail to administer to the needs of that particular family and of each member of that family.

In order that the housekeeper shall meet the needs of her own family, with its characteristic conditions, there are certain points that she must consider and understand, and those points are subjects which will be taken up in the following pages. Foods will be considered under five different heads: The Value of Each Class of Food to the Body, The Best Method of Preparing Food, The Food Which Is Best Adapted To Each Member of the Family, The Wise Combination of Foods and the Best Manner of Serving Foods.

The value of food depends upon its life-giving power to the body, as compared with its cost, the time required for digestion and the waste after digestion, and the energy taken from the body by the process of digestion.

The housekeeper who buys cucumbers at fifteen cents each in early spring does not take into consideration the fact that the cucumber is ninety-six per cent. water, and that taking its cost into consideration, together with its lack of nourishing power and lack of digestibility, she is practicing an unpardonable breach of household economy, from the fact that the cucumber is so deficient in nutriment that it becomes an expensive food when the cost is considered.

## CLASSES OF FOODS.

Foods considered with regard to their life-giving power, fall under five heads: First, those foods which build tissue and repair the daily waste; second, the fatty foods which give heat and energy; third, the hydrated foods which give heat and energy; fourth, those foods which strengthen the bone and purify the blood through their mineral salts; fifth, water, which dissolves food, and helps to carry it to all parts of the body. All these foods must enter into each meal, each day and upon the extent to which they enter in the right proportion, depends the proper feeding of the family.

Our common foods which enter into the simple, three meals a day may be classified as to fall under those five heads:

Tissue-building Foods. (Proteids), .	{	Lean meat. Fish. White of egg. Milk. Cheese. Peas. Beans. Gluten in wheat.
Fatty, Heat and Energy-giving Foods. (Hydrocarbons).	{	Cream. Yolk of egg. Fat meat. Olive oil. Oil of nuts.
Heat and Energy Foods. (Carbohydrates).	{	Cereals..... Potatoes. Beets. Banana. Carrot.
Water, .....	{	Corn. Rice. Wheat. Oats. Buckwheat. Beverages. Fruit. Vegetables.
Mineral Matter,	{	Fruits. Vegetables.

## WISE CHOICE OF FOODS.

## TISSUE-BUILDING FOODS.

While it is true that each daily meal should contain a certain amount of each class of foods, it is also true, that each class should be represented in an amount to suit the age and occupation of the person, as well as to suit his physical condition and the climate in which he lives.

The amount of tissue-building food should increase with out-door exercise. The farmer, the lumberman and the active, growing boy are the people who can safely take an abundance of this class of food because of the fresh air and exercise which they receive. The infant and the young child require only a small amount of this food; the small amount contained in milk being ample for the infant

and that, in connection with a soft-cooked egg or a bit of broth is a sufficient amount for the child of three or four years. The amount increases gradually from four to eight, but when we realize that for the child of nine, four glasses of milk and an egg, with the usual vegetables, supply a sufficient amount for each day, we see that the most common error is too much, rather than too little tissue-building food.

From the age of nine, there is a gradual increase in the tissue-building food required by the system, until the age of twenty-four is reached. After that, the amount decreases, until at eighty, the amount is only slightly more than at the age of four. It is true that the person of forty, fifty and sixty requires less of this food than at an earlier age, when the tissues were not fully developed.

#### HARMFUL RESULTS OF TOO MUCH TISSUE-BUILDING FOOD.

It is true that the greatest per cent. of illness is caused by an accumulation of wastes in the body. It is also true that the tissue-building foods leave in the body a greater per cent. of wastes than any other class of foods. It follows then that an overuse of these foods overworks the excretory organs, and by that overwork they become so weakened that they are unable to perform their work properly and the wastes enter the blood as poisons. The diseases that most frequently result from this unwise choice of foods, are rheumatism, and kidney and liver difficulties.

#### HEAT AND ENERGY-GIVING FOODS.

The heat and energy-giving foods that come under the head of hydrocarbons, are most easily digested when uncooked and are especially beneficial during the cold season, or when the system has been so debilitated by some illness or overwork that an easily digested energy-giver is especially needed. Cream, butter, the yolk of an egg, well-cooked bacon and olive oil are the foods that fall under this class. Other foods that are important energy-givers for the active worker are fat meats, nuts and cheese. These are less easily digested than the first list mentioned and are, for that reason, more suited to the needs of the active worker.

The second class of heat and energy-giving foods is called carbohydrate foods. They occur chiefly as starches and sugars. The chief starchy foods are the cereals, corn, rice, wheat, oats and buckwheat. Peas, beans and potatoes also supply starch. The other vegetables that are of especial value as heat and energy-giving foods are sweet potatoes, parsnips, beets and carrots. Some fruits are of value for the heat and energy they give through the carbohydrates found in them, and chief among them are prunes, dates, figs, apples, apricots, raisins, bananas and cherries.

### HARMFUL RESULTS FROM TOO MUCH OF CARBOHYDRATE FOOD.

If too much of starch and sugar is taken, fermentation takes place, and the acid formed interferes with digestion. It is also true that the liver is overworked in preparing the digested starch and sugar for the blood, if the diet consists of too high a per cent. of these foods.

### MINERAL SALTS.

Certain fruits and vegetables are of great value for the mineral salts which they give to the body. These mineral salts are of great importance, in that they help to strengthen the bone, and also aid in maintaining an alkaline condition of the blood. In other words, they prevent the accumulation of acid in the blood.

There are certain fruits and vegetables that supply a generous amount of mineral salts, and should, for that reason, enter into the diet very frequently. Among this class of foods, I would mention apples, spinnach, cabbage, celery, cauliflower, lemons, oranges, parsnips, carrots and turnips.

### GENERAL VALUE OF FRUITS AND VEGETABLES.

Fruits and vegetables can hardly be overestimated, as regards their importance in the daily diet. They furnish starch and sugar which are needed, as has been stated, in the generation of heat and energy. They act as stimulants to appetite and digestion, because of their characteristic flavor. They furnish mineral salts in abundance. They furnish a woody substance called cellulose, which is not easily digested, but is of value because of the bulk which it gives to the food and the stimulating effect it has upon the excretory power of the intestines. Vegetables also add to the water supply, which never quite meets the needs of the body.

Taking all of these points into consideration, my opinion is, that each daily meal should contain a much higher per cent. of fruits and vegetables and a much lower per cent. of meats, eggs and the other tissue-building foods.

### WATER AS A FOOD PRINCIPLE.

#### Value.

Since water has for its mission the dissolving of food, the equalization of temperature, and, in part, the elimination of wastes from the body, it is absolutely necessary that a large amount of water be taken into the system daily, even though much is obtained from the foods that make up the daily meals, the supply will be far from adequate, if at least six or eight glasses are not taken in addition to that.



## Sources.

Drinking water suffers most from soil pollution. While it is true that the soil has the power of acting as a natural filter, it is also true that there is a limit to its power of filtration, and if it becomes too heavily charged with impurities, these impurities pass into the water veins that feed the wells and springs which are to be used for family use.

There are a number of precautions in connection with this thought: First, prevent soil pollution as far as possible; second, in locating wells, see that the land slopes from the well to the surrounding out-buildings; third, see that the well is well lined, and well curbed and well covered, to prevent the entrance of surface water; fourth, remember that the shallow well does not offer the same degree of natural filtration that the deep well offers; fifth, remember that the well which is located in the immediate vicinity of barns and out-buildings is less safe than the well that is located at a greater distance; last of all, remember that the person who is really in danger when impure water is used is the person whose system is not in perfect condition. We must have water in abundance, and we want the purest water obtainable, but we need most of all the perfectly working physical organism that results from an intelligent understanding and practice of Personal Hygiene.

## CHOICE OF FOOD TO SUIT CONDITIONS.

The subject matter in the preceding pages attempts to show that each class of food has some specific work to do in the body. This being true, the needs of the body must be studied carefully and thoroughly understood, before the body can be perfectly fed. "Food is meant to sustain life and not to destroy it;" and yet when too much food, too little food, the wrong sort of food, poorly prepared food or food taken at the wrong time, is taken into the system, the person who is responsible for that mistake is taking one long step toward the destruction of that body.

## CLIMATIC CONDITIONS. A GUIDE IN CHOICE OF FOOD.

A thorough study of the heat-giving foods indicates that the Summer menu should not consist to a large extent of roast pork, pork and beans, doughnuts and rich pastry. These are heat-giving foods and belong more properly in the cold weather diet. The Summer meals that consist of fresh fruits and vegetables as often as obtainable, and taken in connection with a moderate amount of meat, eggs, cheese or milk, to supply the muscle-giving food, are the meals that meet the needs of the body and do not overtax it. In a word, avoid too much meat. Avoid too much rich food during the Summer season. Do not forget the high value of fruits and vegetables.

## OCCUPATION. A GUIDE IN CHOICE OF FOODS.

The breakfast of bacon, eggs, potatoes, bread and butter, coffee, and perhaps hot cakes, is as unsuited to the needs of the inactive person as the light breakfast of fruit, toast and soft cooked egg is to the active outdoor worker. The outdoor worker requires the muscle-giving food, and is taking in such volumes of fresh air, that the system is able to take care of it, as well as the wastes that remain after its digestion. On the other hand, the overfed system of the inactive person becomes as clogged and congested as the overfed furnace with closed dampers. The outdoor worker is apt to forget, however, the value to him of the use of fruits, and he too often makes use of the hot cakes at the end of the meal, when a generous supply of apple sauce would supply the sweet desired, and give in addition, the mineral salts, the stimulating acid and the useful cellulose. In all cases, the aim is to avoid the overworking of the organs and to avoid the accumulation of wastes in the body. Fruits and vegetables are the strongest allies we have in bringing about these conditions.

## AGE. A GUIDE IN CHOICE OF FOODS.

If we return to the first pages and review the uses of each class of foods, we will see that foods must be chosen with regard to age, if the family are to be fed wisely. This is particularly evident in the case of tissue-building food where the amount must keep pace with the increasing demands of the growing child and decrease from the age of full maturity to extreme old age. It will be seen that the maximum amount of carbohydrates and proteids are required at the age of twenty-four, and the maximum amount of fat, 28.35, at the age of forty.

## ABNORMAL CONDITIONS. A GUIDE IN CHOICE OF FOODS.

This line of work demands a more thorough discussion than can be given in a brief bulletin, but I want to urge the importance of a knowledge of those foods which are needed for the child of tubercular tendencies, the anemic child, the nervous child, the semi-invalid who is a fever convalescent and the member of the family who has become debilitated from any cause.

In all of the cases mentioned there is a demand for the easily digested foods that give a generous supply of energy to the body. Among such foods, cream, milk, soft cooked eggs, custards, well cooked bacon, chicken (particularly the white portion), sweet breads, olive oil, butter, baked potato, well broiled steak, cocoa or chocolate, stand prominent on the list.

The foods to be avoided in any of these cases are: Sausage, pork, baked beans, cheese, salmon, pie, doughnuts, rich cakes or puddings, dried or pickled meats, fried foods and coffee.

The amount of food required increases rapidly from birth to four years. From four to ten years the amount increases very slowly. From ten to twenty there is a very rapid increase in carbohydrates and a steady increase in proteids. The maximum amount of fat is required at forty. There is a slight increase of proteids and carbohydrates required between sixty-eight and seventy.

#### COMBINATION OF FOODS.

Each meal should contain the required amount of tissue-building proteids, heat and energy-giving carbohydrates, heat and energy-giving fats; and in addition to these, mineral salts and water. The dinner that consists of roast beef, macaroni and cheese, and baked beans contains too much proteid. The dinner that offers potatoes, corn, rice pudding and bread furnishes more of starch than is needed. The dinner that offers roast pork and suet pudding provides too much of cooked fat.

In dinner number one, serve macaroni with tomato sauce. Add a lettuce and celery salad. Serve baked custard for the sweet course and the dinner contains a sufficient amount of each food principle for the average family.

#### PREPARATION OF FOOD.

We are not so anxious to see upon our table a very great variety at each meal, as we are to vary the meals from day to day. A model meal is one which consists of a few things which are in harmony with the needs of the family, the capacity of the pocketbook and the time and strength of the housekeeper. If these few things are well cooked and attractively served, the meal will be classed as a perfect one, if a spirit of cheerfulness goes with it.

#### PREPARATION OF VEGETABLES AND CEREALS.

##### POTATOES.

I mention potatoes first because they are so universally used. You will not need to travel far, however, to find that they are not universally well cooked.

##### Composition.

Starch, 18; Water, 78.3; Proteid, 2.2.

The food value of any food depends upon its cost, the time required for digestion, the energy taken from the body during digestion, the energy given to the body by the food and the waste that remains after digestion. Taking all of these things into consideration, the potato is a valuable food in any locality, where the price is not high. The potato, however, becomes more of a luxury in the Southern States where it is not so readily grown and must be imported. The chief

value of the potato lies in the starchy part of its composition of which it has eighteen per cent. Aside from this, the bulk of the potato is water, there being about seventy-eight per cent. of water. The potato is not valuable as a tissue-former, as it contains only about two per cent. of proteid.

#### Preparation for the Table.

The starch in the potato exists in finely divided particles, each of which is surrounded by a tough covering. These coverings can only be burst by heat, and until they are caused to burst there is no chance for the starch particles to expand. The process of cooking potatoes is like the process of popping corn. In the case of the corn, the unpopped kernel is tough and indigestible, but after the moisture in the kernel has been converted into steam, this steam pushes against the covering of the starchy particle, and when that covering has been sufficiently softened by heat, it bursts and the kernel becomes a mass of dry starch which is easily digested.

This same thing is true of the potato, when properly cooked. It must be cooked in boiling water, so that the tough covering to each starchy particle shall burst and allow the starch grain to expand.

#### Plain Boiled Potatoes.

If potatoes are to be boiled without peeling them, a narrow strip of the skin should be removed, to allow the escape of that substance which discolors the potato. If the potatoes are to be peeled they should be covered, as soon as peeled, with cold water to prevent discoloration, because of the action of the air upon this acid-like substance in the potato. Late in the season when potatoes have become shriveled because of loss of water, they are improved by long soaking in cold water, after peeling, but at other times the long soaking is not necessary, and as it always results in a loss of starch, it is an unwise practice except when done to restore the natural amount of water. Place the peeled or well scrubbed potatoes in boiling water and boil until just soft. Drain thoroughly. Shake dish, uncovered, over the heat to dry more perfectly and leave uncovered until served.

#### Creamed Potatoes.

Cut eight medium sized raw potatoes in neat cubes and cook in boiling, salted water until just soft, but not mashed in the least. Drain thoroughly and dry.



## Sauce for Creamed Potatoes.

- 1 cup milk.
- 2 tablespoonfuls flour.
- 2 tablespoonfuls butter.
- 1 tablespoonful chopped parsley.
- 1 teaspoonful salt.
- $\frac{1}{8}$  teaspoonful pepper.
- 5 tablespoonfuls grated cheese.

## Directions.

Melt butter. Add dry ingredients and blend quickly. Add milk gradually and cook until the mixture thickens. Add grated cheese and stir until melted. Add potatoes. Add parsley last and serve.

Only level measurements are used.

## Baked Potatoes.

The most easily digested potato is the baked potato, because there is no opportunity for the starch to become water soaked if the potato is broken open, as soon as soft, to allow the escape of steam, and is served at once. If potatoes are to be baked, they should be as nearly the same size as possible. They should have a strip of peeling removed to allow for the escape of moisture, and should be baked in a hot oven. The dry, flaky texture of the well baked potato shows that the starch particles have been finely divided, thus making them more easily dissolved by the digestive fluids.

## Potato Soup.

- 2 medium sized potatoes.
- 1 cup milk.
- 1 tablespoonful butter.
- 1 tablespoonful flour.
- 1 tablespoonful finely chopped onion.
- 1 teaspoonful salt.
- $\frac{1}{8}$  teaspoonful pepper.
- 1 tablespoonful finely cut parsley.
- A few grains cayenne.

## Directions.

Peel potatoes and cut into quarters. Cook until soft. Drain and mash. Cook milk and onions in double boiler for ten minutes. Melt butter. Add dry ingredients. Add milk gradually, and cook until it thickens. Add mashed potatoes and reheat. Beat until smooth. Add parsley and serve.

## Mashed Potatoes.

Boil potatoes until soft. Drain and mash or press through potato ricer. Moisten with cream. Season with salt and pepper and beat vigorously until smooth and creamy. Pile lightly into the serving dish and serve at once.

## Synopsis.

Cook potatoes in boiling water. Drain thoroughly as soon as soft. Leave uncovered until served. Bake potatoes in a hot oven.

## COOKING OF RICE.

Rice when ready to serve should be soft and thoroughly cooked, but each kernel should retain its original shape, and kernels should not adhere to each other.

## Precautions.

Buy rice in which there are no broken kernels. Remove all foreign seeds. Wash carefully in cold water. Place rice in eight times the amount of boiling, salted water. Boil until just soft. Place in a sieve and wash with cold water.

## Reasons.

Broken kernels of rice become pasty and sticky in spite of great care in cooking. Wash in cold water because the cold does not dissolve the starch. Use eight times as much water as rice because the motion of the large amount of water keeps the kernels from sticking to each other. Remove as soon as soft in order to retain the shape of the kernel and to prevent the forming of a sticky pasty mass. Wash with cold water to remove starch that has been dissolved from kernel during the cooking process.

## Suggestions.

Rice contains very little waste and contains starch in an easily digested form. Because of the lack of flavor, rice is improved by serving with tomato sauce, and cheese, or with fruits, or sauces, or well seasoned meats.

## Steamed Rice and Meat.

- 2 cups cooked rice.
- 1½ pounds veal.
- ½ small onion.
- 1 carrot.
- 2 teaspoonfuls salt.
- 1 tablespoonful lemon juice.
- 1 egg yolk.
- ¾ cup juice from cooked veal.
- ⅓ teaspoonful pepper.

Place veal, sliced onion and sliced carrot in a small kettle and cover with boiling water. Reduce to simmering point after five minutes; cook until tender. Remove meat from bone and chop fine. Add salt, pepper, lemon juice, egg yolk and moisten with stock.

Line a buttered baking bowl with cooked rice. Place meat in the opening left and cover with rice. Cover dish with buttered paper, well tied down and steam forty minutes. Serve with tomato sauce.

#### Tomato Sauce.

- 2 cups cooked tomatoes.
- 2 teaspoonfuls salt.
- 1 teaspoonful sugar.
- 4 tablespoonfuls butter.
- 1 tablespoonful chopped onion.
- $\frac{1}{4}$  teaspoonful mustard.
- $\frac{1}{8}$  teaspoonful pepper.
- 4 tablespoonfuls flour.

Strain tomatoes. Melt butter, add dry ingredients and blend. Add tomatoes gradually, add onion and cook until sauce thickens.

#### COOKING OF MACARONI.

##### Precautions.

Buy macaroni that does not crumble when broken into pieces, that is yellowish, rather whitish in color, cook in a large amount of boiling salted water, until just tender enough to cut easily, and wash it with cold water to remove the dissolved starch. Macaroni when ready to serve should have double its size, should have retained its shape and should not be so sticky that the pieces adhere to each other.

##### Suggestions.

Macaroni is made from wheat which contains a higher per cent. of the tissue-building gluten than ordinary wheat, and for that reason it is to some extent a substitute for meat. It is especially so when combined with cheese, which is also rich in tissue-building food. Macaroni is lacking in flavor, and for that reason is wisely combined with foods that are rich in flavor. Tomato sauce and cheese, fall under that head.

#### Macaroni with Cheese Sauce.

- $\frac{3}{4}$  cup macaroni.
- 1 cup milk.
- 1-3 cup grated cheese.
- 2 tablespoonfuls butter.
- 2 tablespoonfuls flour.
- 1 teaspoonful salt.
- $\frac{1}{8}$  teaspoonful pepper.
- 1 tablespoonful chopped parsley.

Cook macaroni as directed after breaking into inch pieces.

## Directions for Sauce.

Melt butter, add and blend dry ingredients, adding all at once and stirring rapidly. Add liquid gradually, cook until it thickens and add cheese, add macaroni and parsley. This may be served at once or may be placed in a baking dish covered with buttered crumbs and placed in the oven to brown.

## OATMEAL.

## Precautions.

Cook thoroughly, in boiling water. Eat more abundantly during the winter or when engaged in active outdoor exercise. Sweeten moderately.

## Composition.

Water, 7.3; Proteid, 16.1; Fat, 7.2; Carbohydrate, 67.5.

The fact that oatmeal contains 16.1 per cent. tissue-building food, 7.2 per cent. of fat and 67.5 per cent. of the carbohydrate food, chiefly in the form of starch, places it among the foods rich in value. This is especially true when we take into account the fact that the cost is very little and that it is easily digested when well cooked.

## Suggestions.

Oatmeal contains a considerable amount of a woody substance called cellulose. The long cooking is necessary in order that this may be softened. It is best when cooked in a fireless cooker. Oat meal, cooked less than two hours, is very unwholesome and unpalatable.

## Directions for Cooking.

1 cup oatmeal (coarse).

3 cups water (boiling).

1 teaspoonful salt.

Add oatmeal gradually to boiling salted water. Cook in double boiler for twenty minutes and place in fireless cooker. Oatmeal placed in a good fireless cooker at seven in the evening will be warm enough for a seven o'clock breakfast. The flakes of oats will have retained their shape. They will be soft and moist and the flavor will be delicious because of the long cooking.

The home-made cooker, if well packed, will give as good service as any that can be made. The cooker shown in this page, was made from a wooden bucket. It was packed, bottom and sides with a thick layer of hay. A covering of thick paper was placed inside of that and then, to hold both in place, a cloth lining was tacked around the upper edge of the bucket and made to fit into the nest that was left for the granite bucket in which the food is to be





HOMI-MADE COOKER.



placed. A thick cushion is tacked on the under side of the closely fitting cover and the cover is securely held in place by means of a clasp on the side of the bucket. This clasp fits into a screw eye that has been placed on the edge of the cover. The idea is, to so pack the cooker with a non-conducting substance that the heat, which is already in the food, shall be retained and complete the cooking of the food.

Some of the good non-conducting materials are, hay, paper, excelsior and asbestos. The more heat we can manage to introduce into the cooker, the more quickly and thoroughly the food will cook. If the cooker is high enough to allow one utensil to rest on another, there is a great advantage in filling one with boiling water while the other is filled with hot food.

#### CABBAGE.

The cabbage should be classed as a flavor rather than a food vegetable. The illustration will show that the cabbage is not rich in the muscle-building or the heat and energy-giving foods. It does contain some mineral matter which is of value and its peculiar flavor gives it value as an appetizer.

#### Precautions.

The cabbage should be cooked uncovered. This gives the volatile substance which forms gas, an opportunity to pass off and thus renders the cabbage more digestible and more delicate of flavor. It should be cooked for ten minutes in boiling water, and should then be drained and cooked until tender in fresh boiling water. This blanching, as it is called, removes a portion of the coloring matter and also gives the vegetable a more delicate flavor.

#### Cabbage with Queens Sauce.

- 1 small cabbage.
- 1 cup cream.
- 1 egg yolk.
- 1-3 cup cheese (grated).
- 1 teaspoonful salt.
- $\frac{1}{8}$  teaspoonful pepper.
- 2 tablespoonfuls butter.
- 2 tablespoonfuls flour.

Cut cabbage in small pieces or chop in a bowl. Cook as directed and drain at once.

#### Sauce.

Melt butter. Add dry ingredients and blend carefully. Add cream gradually and cook until it thickens. Add cheese. Pour gradually

over one egg yolk and stir constantly. Add cabbage, reheat and serve.

#### Suggestions.

Cabbage is distinctly a food for the person of good digestion rather than the person of questionable digestive power. It is not a wise food for children and is not a food which is rich in food value. Cabbage is least digestible when cooked with an abundance of fat.

#### PEAS.

Peas rank with beans in the tissue-building food principle and they are the only vegetables which are rich in that food principle. Peas are at their best when only half grown and if cooked before they have had time to wilt. They should be cooked in just enough boiling water to cover and should be cooked in an uncovered dish. Peas should cook in from twenty to thirty minutes and the salt should not be added until the beginning of the last ten minutes.

#### DRIED PEAS AND BEANS.

The only exception to the rule that vegetables should be cooked in boiling water is the case of dried vegetables. Dried peas and beans as well as dried corn should soak over night in cold water. They should then be drained and set to cook in fresh cold water, which is allowed to reach the simmering point gradually.

#### VEGETABLE SOUP.

- 2 pounds beef from the chuck.
- 1 cup diced carrots.
- 1 cup diced potatoes.
- 1 tablespoonful chopped parsley.
- 3 teaspoonfuls salt.
- 3 tablespoonfuls butter.
- 1 cup cooked peas.
- 3 cloves.
- 4 stalks celery.
- 1 tablespoonful chopped onion.
- $\frac{1}{4}$  teaspoonful pepper.
- 3 tablespoonfuls flour.

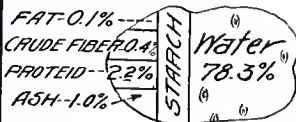
Cut meat in pieces and brown for three minutes in a hot pan, containing a small amount of fat. Place the meat in a kettle and cover with boiling water. Add carrots, potatoes, peas, cloves, onions, and sliced celery. Cook slowly without boiling, for one hour and add a few grains of pepper and one tablespoonful of salt. Continue cooking until the meat is tender. Remove the meat and serve it with the tomato sauce, given on another page of this bulletin.



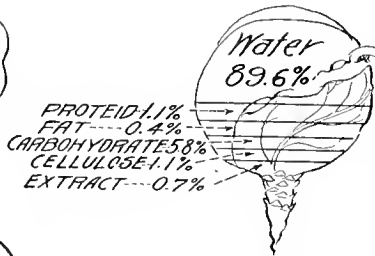


# COMPOSITION OF FRUITS AND VEGETABLES

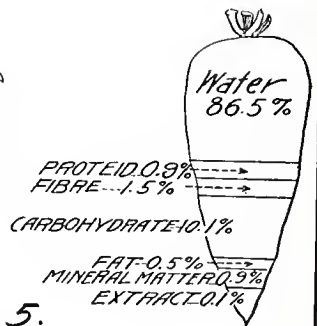
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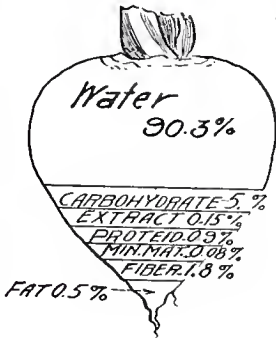
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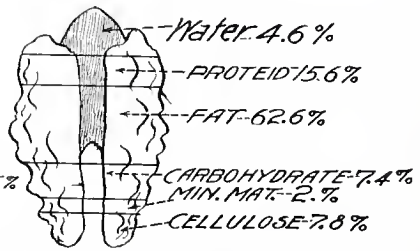
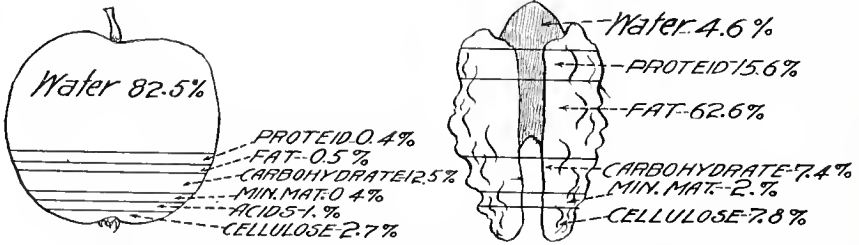
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COMPOSITION OF PLANTS AND VEGETABLES.

### To Prepare the Soup.

Strain the liquid, from which the meat was taken, and press as much of the vegetable pulp through the sieve as possible. Add enough water to make three cups of liquid. Melt the butter, add the flour and beat until smooth. Add the liquid gradually and cook until it thickens.

### RAW VEGETABLES AS FOOD.

The vegetables most commonly used raw are lettuce, radishes, onions, cucumbers and celery. Their chief value lies in the fact that they furnish mineral matter and that they act as a stimulant to the flow of the digestive fluids, because of their flavor. They stimulate the appetite because of the variety which they afford in the daily meals. The cellulose furnished by these raw vegetables increases the muscular activity of the digestive tract and aids in the removal of wastes.

#### Precautions.

One of the chief purposes in cooking food is for the destruction of germ life. It follows then, that food which is to be eaten raw, should be as fresh as possible, and should be thoroughly washed with pure water. Serious epidemic of disease are frequently, directly traceable to some vegetable grower who has used polluted water for washing his vegetables.

Special care should be taken with reference to cucumbers, which contain substances which are irritating to the digestive tract. They should have a thick layer of peeling removed from them and should soak in cold salted water before being used. One of the chief values of raw vegetables lies in the fact that they afford an opportunity for the use of olive oil, which is of rare value in the day's menu.

### DAILY MEAT SUPPLY.

The office of meat in the daily diet is, as has been stated, the building up of tissue and the renewing of waste tissue. The folly, then, of providing an equal amount of meat for the outdoor and the indoor worker is plainly evident. The amount must vary, not only with occupation, but with age, climatic conditions and condition of the system. It is also true that in the majority of cases, too much, rather than too little meat is eaten.

Taking into consideration the fact that eggs, milk, cheese, peas, beans, fish and bread supply a large amount of tissue-building food and that almost all vegetables, and some fruits supply a small amount, it seems safe to state that the meat supply may be greatly reduced without interfering with the development of the body. The indoor worker who finds meat on his table three times a day can certainly reduce that amount to once a day, particularly if his

daily meals provide eggs, fish, macaroni and cheese, peas or beans quite frequently, and if milk is taken frequently as a beverage.

#### Choice of Meat.

Veal is less digestible and less nutritious than beef. Lamb is less nutritious and not so easily digested as mutton. Pork, which is nearly all fat, is more digestible than pork which is partly fat, and partly lean. Bacon, then, is much more digestible than roast pork. Beef is rich in extractives, which make it a stimulating meat. For this reason, it should not be used exclusively in the meat diet. Beef and other red meats leave uric acid in the system, if used too freely, and thus cause rheumatism.

From these facts, I would arrive at the following conclusions: In cases of weak digestion, use beef or mutton, rather than veal or lamb. Well cooked bacon is the pork to choose, if digestibility is to be considered. Roast pork, pork chops and fried pork are difficult of digestion and should be made use of by the active worker, rather than persons of sedentary habits.

In general, the meat supply which includes a moderate amount of meat and presents the various kinds in turn, by way of variety, shows the greatest wisdom on the part of the housekeeper.

The housekeeper, who has no instruction in the choice of meat, finds it a most difficult task, when she is first compelled to make the attempt. A lack of knowledge along this line, means that the expensive cuts are often chosen, when a cheaper cut would serve the purpose as well. It also means that through lack of knowledge, a cut is chosen for a roast that would make an admirable stew, while as a roast it is far from acceptable. In order that the best cut be chosen for the purpose, a study of the animal is necessary. Certain parts are best for steaks while other parts are more desirable for roasts, stews or soups.

#### Steaks.

The most tender and the best flavored meat comes from the least used muscles of a young animal. The flesh from an old animal has a strong, unpleasant flavor that is due to the acids that have accumulated in the muscles during the life processes of the animal. Beef to be used for the very best steak will come from the loin of the animal and the best steak comes from the middle part of the loin; it is the porterhouse steak and is known by its T-shaped bone. The front part of the loin gives the short porterhouse or the club steak.

The sirloin is the part just below the loin and does not contain that tender portion of the beef that lies adjacent to the backbone. The front part of the rump is sometimes cut as a steak, and while it

makes a fairly good steak, it is inferior to the sirloin. The cut runs with the grain rather than across the grain in the greater part of the rump steak and this fact distinguishes it from the sirloin. The back part of the chuck and the upper part of the round are also used as steaks. These are sometimes chosen because there is less waste, by the amount of bone, than there is in the porterhouse. They are of course not so tender and not of so delicate a flavor, but careful cooking makes them into wholesome, edible dishes of meat. A portion of the flank is sometimes used as a steak.

#### Roasts.

The most choice roast is the tenderloin or the fillet of beef, as it is called. This is expensive, and cannot be gotten at small markets, as it is unprofitable to spoil the steaks by removing the tenderloin in that way. Next in rank, comes the rib roast that is cut from the first three ribs. This may be cut as a "Standing Roast" with the ribs left on, or a "Rolled Roast" may be made. If the roast is to be rolled, the ribs are removed, and the tail of the roast is wrapped around the tenderloin, and securely skewered.

If a very large roast is to be used, the chuck roast is often chosen. This cut is not so desirable for a small roast.

#### Pot Roasts.

The chuck, the front part of the rump, the brisket and the upper part of the round are much desirable for a pot roast, but not so suitable for an oven roast. The flank is rolled and used as a pot roast. This cut is improved by high seasoning and is best when cooked in connection with carrots, parsley and celery to give additional flavor.

#### Stews.

The back portions of the neck, the brisket, the chuck, the rump, and the round are good cuts to buy for stews.

#### Soups.

The shank, the shin and the shoulder bones are the best parts for soup. The bones should be split open with a cleaver, in order that the marrow and gelatine may enter the soup. If meat is to be bought for mince meat, a solid meaty piece is desirable. A cut from the upper part of the round, from the brisket or from the lower part of the chuck is good for this purpose.

The plate and the navel are used as boiling pieces and are often used for corned beef.

#### Bacon.

Slice cold bacon as thin as possible. Place in a skillet and fry until crisp and well browned. Place cooked slices upon coarse wrapping



paper, to remove the superfluous fat. Bacon cooked in this way is not only very easily digested but is very nutritious. It is an especially good food for pale and nervous children as well as adults of the same class.

#### Broiled Steak.

Broiled steak is steak which is cooked by dry heat, without the addition of fat. It may be broiled in a hot pan or a broiler or in a hot oven. Broiled steak is much more easily digested than fried steak because no fat is added during the cooking.

Lean meat contains a large amount of proteid that can be digested in the stomach. Fat cannot be digested in the stomach. When lean meat is fried, in fat, the fat so completely coats each particle of lean, that the digestive fluids cannot penetrate into it and digest the proteid. The semi-digested proteid ferments, and causes the accumulation of gas and acids, which are present in cases of indigestion.

#### Pan Broiled Steak.

Heat the skillet very hot. Put in the steak which has been well wiped with a damp cloth and turn it until all sides and edges are seared sufficiently to retain the juice. Lower the heat if a gas stove is used. Place the pan on a cooler part of the stove, if a range is used. Cook slowly after this time. Heat hardens proteid and will cause a steak to be tough if it is cooked at a high degree of temperature the entire time. Add salt and pepper when the steak is half done. Adding salt at first causes the juice to flow too freely. Cook steak until it is pink throughout the inside. Add butter just before serving. A steak from one and a half to two inches thick, should broil in from twelve to fifteen minutes.

A garnish of slices of lemon and a few sprigs of parsley makes a very attractive dish of steak. Lemon butter may be used in place of plain butter.

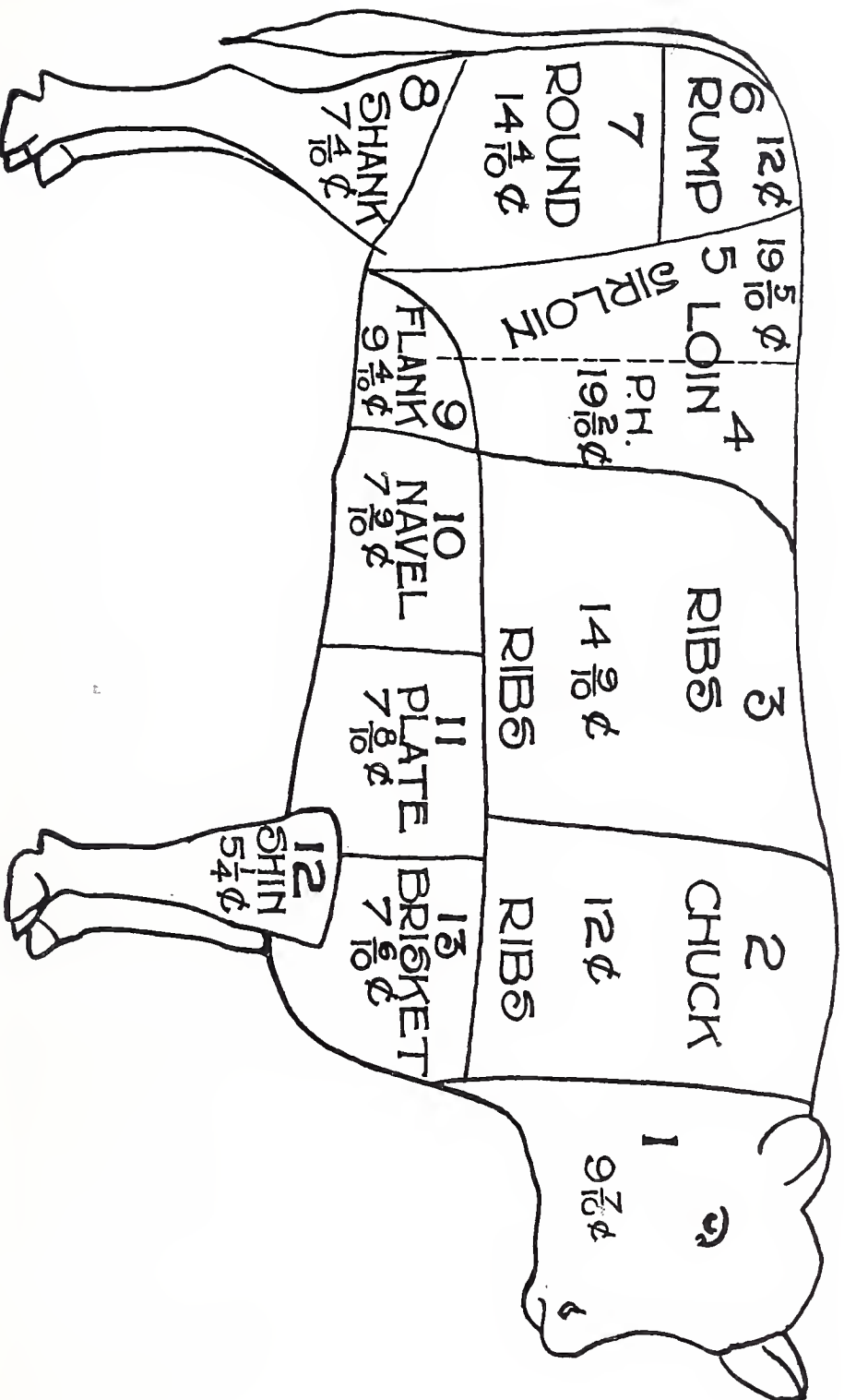
#### Lemon Butter.

- 1 tablespoonful butter.
- $\frac{1}{4}$  teaspoonful salt.
- 1 teaspoonful lemon juice.
- 1 teaspoonful chopped parsley.
- 1 teaspoonful chopped pickles.

Cream butter, add lemon juice gradually. Add the other ingredients and place on the steak, as soon as it is taken from the pan.

#### Pot Roast.

This is a particularly good way, to prepare a roast from one of the cheaper cuts. The front part of the rump, the back part of the chuck or the round, are good cuts to use for this purpose.



THE ABOVE CUT SHOWS THE AVERAGE RETAIL PRICES PER POUND OF BEEF AS FOUND IN THE HAMBURG MARKETS.





Heat a small amount of lard or beef drippings in a skillet. Sear three pounds of meat well on all sides. Place two cups of boiling water in a kettle (iron preferred), add 4 tablespoonfuls vinegar, 6 cloves,  $\frac{1}{2}$  medium sized onion, a bit of bay leaf. Cover tightly and allow to simmer from three to four hours. Replace water just often enough to prevent burning. Add salt and pepper after the first two hours.

#### Sauce for Pot Roast.

Strain the liquid that remains in the pot.

2 cups liquid. 2 tablespoonfuls butter. 2 tablespoonfuls flour.

Melt butter, add flour and stir briskly until blended without lumps. Add liquid gradually. Cook until the sauce thickens.

#### Oven Roast.

The same precaution should be taken in roasting that is taken in broiling. For that reason the oven should be hot at first, and kept hot until the roast is well seared. After that, the heat should be reduced and the roasting allowed to continue gradually. A high degree of heat for the entire time will harden the proteid throughout the entire roast and cause it to be tough. The salt should not be added until the roast is half done and twenty minutes to the pound should be allowed for roasting.

#### Meat Substitutes.

Meat is eaten, partly for the flavor which is given by the extractives found in it, but chiefly for the fat and proteid it contains. These may be given the body by other foods which then act as suitable substitutes for meat.

Fat may be brought into the diet by the use of cream, butter, olive oil, egg yolk, nuts or cheese, as well as by the use of fat meat. Of these fatty foods, olive oil, cream and butter are more easily digested than the other fats named. In general, raw fats are more easily digested than cooked, and fats that are mixed with proteids. Good examples of fats mixed with proteids are seen in nuts, salmon and cheese. For that reason, these foods are too difficult of digestion to be taken in more than moderate amounts, and are foods to avoid for children and people of weak digestion.

Proteid may be added to the diet in high per cent. by the use of fish, eggs, milk, cheese, nuts, peas and beans. Eggs are a valuable substitute for meat, and their value consists largely in the fact that they may be prepared in such a variety of ways.

#### PREPARING A FOWL FOR ROASTING.

After the fowl is well plucked and singed, slit the skin down the back of the neck and cut off the neck as low down as possible. Draw

the fowl through this opening at the neck. Make a small incision at the vent and wash the inside thoroughly, being careful to remove the kidneys, which lie close to the backbone. Remove the oil gland at the vent.

In order to facilitate the carving, remove the wish-bone. To do this, find the small white spot that marks the joint, connecting the wish-bone with the backbone. Puncture this with a sharp knife and break the joint. Push the wish-bone to the front and break the joints that connect it with the breast-bone. Remove the wish-bone.

Fill the breast cavity with dressing until it is naturally plump. Fold the skin, that covered the neck of the fowl back, between the wings. Bend the wings back until they lock over the end of this loose skin, and hold it in place. This gives the breast and neck of the fowl a neat appearance and prevents the escape of the dressing.

The next step is to remove the tendons from the leg, and thus render that portion more tender. To do this, cut a slit from the foot up to the first joint. Pick up the tendons, one at a time, with a skewer or some slender piece of metal; a nail will do. Take a twist in the tendon, and pull until the ends are loosened, and the tendon can be removed. Proceed carefully until each tendon is removed. After the tendons are removed, cut off the leg one inch below the joint. This is to prevent the flesh from shrinking back and exposing the bone.

The last step in the preparation, is to press the thigh back under the skin on the back of the chicken and to fasten the end of the leg close to the body of the chicken. First, press firmly on the lower end of the thigh and bring the thigh into the desired position. Cut small slits in the skin just below the breast, and slip the ends of the leg into those slits. This holds the leg close to the body, and prevents an over cooking of that portion. It also makes it possible to carve the fowl more neatly.

## STANDARD WAYS OF PREPARING EGGS.

### Soft or Hard Cooked Eggs.

Allow 1 pint of water for 2 eggs. Heat in double boiler until water in outside part of utensil is boiling. Temperature of water in inner vessel will be 180 degrees. Put in eggs with a spoon. Cover and let stand over fire for 6 to 8 minutes if liked soft cooked; 30 minutes for hard cooked. Same result may be obtained by having water boiling in saucepan. Slip in eggs and remove saucepan to back of range, where water will not boil again. Eggs perfectly cooked should be placed and kept in water at a temperature of 175 degrees.

When ready to serve, the whites should be jelly-like and the yolks slightly thickened, if the egg is soft cooked. If the egg is hard cooked, the white should be hard, but brittle. It should not be tough and rubber-like. The yolk should be dry and mealy. The chief precaution to be observed is, that eggs should never be cooked in boiling water. The water should always be below the boiling point.

#### Poached Eggs.

Have ready a shallow pan two-thirds full of boiling water, salted, allowing  $\frac{1}{2}$  tablespoonful salt to 1 quart of water. Put 2 or 3 buttered muffin rings in the water. Break each egg separately into a cup and carefully slip egg into muffin ring, the water should cover the eggs. When there is a film over the top and the white is firm, carefully remove the egg and ring with a buttered skimmer to pieces of buttered toast. Take off the ring, sprinkle a little pepper over each egg and cover each egg with hot cream, to which a small amount of salt has been added.

#### Plain Omelet.

- 4 eggs.
- $\frac{1}{2}$  teaspoonful salt.
- Few grains pepper.
- 2 tablespoonfuls cold water.
- $\frac{1}{2}$  tablespoonful butter.

Separate the yolks from the whites. Beat the yolks in a bowl, until they thicken. Add salt, pepper and water. Beat the whites until they are stiff and dry. Blend the whites with the beaten yolks carefully. Do not beat the mixture. Melt the butter in a smooth frying pan and butter the pan thoroughly. Turn in the mixture and place on the stove where it will cook slowly for 10 minutes. Put the pan in a moderate oven to cook the top of the omelet. When it feels firm to the touch, remove from the oven. Make a crease across the top with a sharp knife, fold and place on a hot platter. The omelet should be light and puffy.

#### Scrambled Eggs.

- 5 eggs.
- $\frac{1}{2}$  cup milk.
- $\frac{1}{2}$  teaspoonful salt.
- $\frac{1}{8}$  teaspoonful pepper.
- 2 tablespoonfuls butter.
- 1 tablespoonful chopped onion.
- 1 tablespoonful chopped green pepper.

Beat eggs slightly, not enough to blend whites and yolks; add salt, pepper and milk. Melt butter in omelet pan and turn mixture. Cook over moderate fire until creamy, stirring and scraping from bottom of pan.

## Boiled Custard.

- 2 cups scalded milk.
- 3 eggs.
- $\frac{1}{4}$  cup sugar.
- $\frac{1}{8}$  teaspoonful salt.
- $\frac{1}{2}$  teaspoonful vanilla.
- A few drops of rose water.

Beat eggs, add sugar and salt and stir slowly into the hot milk. Cook in a double boiler, stirring constantly until mixture coats the spoon, then remove quickly from the fire and add flavoring. Turn into a cold bowl and set bowl in cold water.

## Baked Custard.

- 4 cups scalded milk.
- 5 eggs.
- $\frac{1}{2}$  cup sugar.
- $\frac{1}{4}$  teaspoonful salt.
- A little grated nutmeg.
- 1 teaspoonful lemon extract.

Beat eggs, add sugar and salt and add the scalded milk slowly. Pour into buttered baking dish, or into individual buttered baking cups, sprinkle with nutmeg. Set in a pan of hot water and bake in a slow oven until custard is firm. Remove from pan containing hot water and set in cold water to cool quickly. Custard should be firm and smooth. It should not be watery and it will not be if baked slowly, tested carefully and cooled quickly.

## BEANS AS SUBSTITUTE FOR MEAT.

Beans contain a higher per cent. of tissue-building food than meat. They are, however, more difficult of digestion than meat, and this fact makes them a more suitable food for the active outdoor worker, especially if they are to be used in the family diet frequently. Lumbermen thrive on a very frequent diet of baked beans, because of their active out-door life and the amount of oxygen they breathe in daily. For the person of ordinary activity, however, baked beans are most wisely used as a substitute for meat, and even then not too frequently.

## Baked Beans.

Look over carefully and wash one quart of navy beans. Soak all night in cold water. Drain and cover with fresh cold water. Bring water to the simmering point and cook beans until they are tender, but not broken. Drain and place in a baking crock (a covered one preferred) and place in the center of the dish a piece of salt pork



weighing one-half a pound. Cut gashes in the upper side of the pork and cover pork with beans. Pour over the beans the liquid prepared as follows:

- 1 quart boiling water.
- $\frac{1}{2}$  cup molasses.
- 4 teaspoonfuls salt.
- $\frac{1}{2}$  teaspoonful pepper.
- $\frac{1}{2}$  teaspoonful mustard.
- 2 tablespoonfuls chopped green peppers.

Bake from 4 to 6 hours. Serve with tomato sauce.

#### Tomato Sauce.

- 1 cup cooked tomatoes.
- $\frac{1}{2}$  small onion.
- 1 small carrot.
- 1 teaspoonful salt.
- 1 tablespoonful chopped green pepper or  $\frac{1}{8}$  teaspoonful pepper.
- 2 tablespoonfuls butter.
- 2 tablespoonfuls flour.
- 1 teaspoonful sugar.
- $\frac{1}{8}$  teaspoonful mustard.

Cook tomatoes with sliced onion, sliced carrot, sugar and green pepper. Melt butter and add the other dry ingredients, flour, salt, mustard, and blend until smooth. Strain tomatoes and gradually add to the butter mixture. Cook until the sauce thickens.

#### Lima Beans.

Wash 2 cups of lima beans and soak in cold water for 2 hours. Drain and place in fresh cold water. Cook until tender, always keeping water below the boiling point. Partly drain and add four medium sized tomatoes that have been peeled and sliced, 1 tablespoonful chopped green peppers,  $2\frac{1}{2}$  teaspoonfuls of salt and 2 tablespoonfuls of butter.

Macaroni and cheese serve as good substitutes for meat, and the following recipes may be used for that purpose:

#### Macaroni Loaf.

- $\frac{1}{2}$  cup macaroni.
- 1 cup cream.
- 1 cup soft bread crumbs.
- $\frac{1}{4}$  cup butter.
- 1 tablespoonful chopped green peppers.
- $\frac{1}{2}$  cup grated cheese.
- 1 teaspoonful chopped onion.
- 1 tablespoonful chopped parsley.
- 3 eggs.
- 1 teaspoonful salt,

Cook the macaroni in boiling salted water until tender. Drain and rinse in cold water. Scald the cream, add bread crumbs, butter, pepper, salt, grated cheese, parsley, onion, beaten eggs and macaroni. Line a quart baking dish with buttered paper, turn in mixture, set the pan on folds of paper, in a dish of warm water and bake in a moderate oven from  $\frac{1}{2}$  to  $\frac{3}{4}$  of an hour. Serve with tomato sauce.

(Boston Cooking School Magazine.)

#### Corn and Cheese Souffle.

- $\frac{1}{4}$  cup butter.
- $\frac{1}{4}$  cup flour.
- 2 cups milk.
- 1 cup chopped, cooked corn.
- $\frac{1}{2}$  cup grated cheese.
- 3 eggs.
- $1\frac{1}{2}$  teaspoonfuls salt.
- 1 tablespoonful chopped green peppers.

Melt the butter, blend with the flour and seasoning, then add the milk gradually. Add the corn, cheese and beaten yolks. Carefully fold in the beaten whites. Being careful not to mix so thoroughly that the air escapes. In this dish, the lightness depends upon the expansion of air that has been beaten into the white of egg. As the air is heated, it rises and pulls the batter up with it. When it has risen to its full height, there should be heat enough in the oven to harden the proteid and so make the mixture firm. Turn the mixture into a buttered baking dish and bake in a moderate oven thirty minutes.

#### Test for Baking.

Press upon the top with the finger. If the dent remains, the souffle is not sufficiently baked. If the crust springs back to its original surface after being pressed the souffle is ready to serve at once.

#### BREAD.

Our very first knowledge of any bread was of the very hard bread, made in ancient times. It was not long, however, before they discovered, that if the dough was left in the air for some time, it became light and spongy and capable of lightening another loaf, if a bit of it were saved for that purpose. This lightness was caused by a microscopic plant life that exists in the air, and these yeast plants are still used for that purpose.

The wild yeast plants fall into the moist dough, and as they feed upon the starch in the flour it is changed into sugar. The sugar is changed into alcohol and a gas called carbondioxide, and it is this gas that makes the bread light. The gas rises as it becomes warm and as it rises, the dough rises with it.

When the dough is put into the oven, the heat hardens the sticky part of the flour and holds the loaf in a solid form. This wild yeast is the agent that causes the rising of the Salt Rising Bread that used to be made so frequently. The homemade yeast, the dry yeast cake and the compressed yeast cake, all act upon the same principle that was found to be true in the case of the wild yeast. They act more rapidly, however, because there are more yeast plants condensed in one small cake.

The compressed yeast cake acts more rapidly than the dry, because these plants, like all other plants, must have moisture, in order to grow rapidly. Yeast plants grow rapidly if they have the proper temperature, the proper amount of moisture and the proper food. The temperature at which they grow best is from 75 to 80 degrees. For this reason, bread that is kept at a uniform temperature is well risen and has a better flavor to some extent.

The flavor of the bread depends upon the materials used, but it depends more upon the temperature during the rising and during the baking. If the bread is too cool, the yeast plants cannot grow, but other microscopic plants do grow, and by their growth, they produce another flavor than the rich nutty flavor that bread should have. If the bread be too warm, the growth of the yeast plant is again retarded, but there are organisms that are able to grow in that temperature also, and by their growth, other undesirable flavors develop.

#### The Ideal Loaf.

We may never see an ideal loaf of bread, but we are ambitious to come as near the ideal as possible, consequently it is well to have a mental picture of it at least. The first point is the baking. The crust should be an even golden brown and should not be more than three-eighths of an inch thick. If the crust is thicker than that, it indicates that the oven was too hot when the loaf was put in.

The testing of the crumb of the loaf, is done by pressing upon it with the finger. If the bread springs back to its original surface, the bread is well baked, but if the dent remains after the finger is removed, that indicates that the loaf is not well baked. It is doughy and not wholesome.

We next look at the texture of the bread. It should be fine grained and of an even grain throughout. If there are large holes at the top, they are an indication that the oven was too cool when the bread

was put into the oven. The heat should be great enough to stop the gentle rising of the bread, after the first five minutes. If there are large holes throughout the bread, the bread has not been sufficiently kneaded to distribute the gas evenly. The bread should be evenly light throughout. Heavy streaks may have been caused by allowing the bread to stand, after it is ready for the oven; or by having the oven so cool that the loaf settles before there is heat enough to stiffen it.

The flavor and odor of the bread should be sweet and like freshly cracked nuts. If the bread stands too long before baking, the fermentation of the yeast forms an acid and makes the bread sour.

#### Directions for Making Bread.

- 1 yeast cake.
- 1 tablespoonful lard.
- 1 tablespoonful butter.
- 2 teaspoonfuls salt.
- 2 cups scalded milk.
- 1 tablespoonful sugar.

Dissolve yeast in warm water. Mix milk with the other ingredients. Cool to the temperature of fresh milk and add yeast. Add flour to make a thin batter and beat well. Allow this to stand in a warm place until the batter is full of air bubbles. Add flour until the loaf can be handled without sticking, but leave it as soft as possible. Knead until the dough is elastic and full of air bubbles. Place again in a warm place and allow it to double its size. Knead again until the cracking sound indicates that the dough is full of air. Form into two loaves and place in separate pans to rise. The loaves should again double their size, and as soon as that point is reached, they should be placed at once in a hot oven. A loaf of the size given, should bake forty-five minutes.

If a soft crust is wished, moisten it with milk or melted butter, as soon as taken from the oven. The loaf may also be wrapped in a cloth for the same reason. If a brittle crust is desired, leave the loaf uncovered until it is cool.

#### Precautions.

Do not keep bread in a cold place when it should be rising.

Do not allow the bread to become too hot.

Work the soft sponge into a loaf just when it is full of bubbles.

Do not use more flour than is necessary.

Knead the bread until it springs back from the hand and until the bubbles of air can be heard to crack as the bread is kneaded. Have the oven ready for the bread when the bread is ready for it.

Do not have the oven so hot that the bread begins browning at once.



It should not brown for ten minutes, but should rise gently during that time.

The making of good bread is an accomplishment that every girl of ten should begin to know something about, and be interested in; but she will not make really good bread until she knows a good loaf when she sees it.

#### SIMPLE DESSERTS.

Sugar is a producer of heat and energy, and for this reason, sweets taken in moderation and at the right time, are of great value. The government realizes this, when it provides loaf sugar for its sailors and soldiers. Queen Victoria once sent a large amount of sweet chocolate to her soldiers in South Africa, and had this fact in mind when she sent it.

We feel inclined to eat a bit of sweet food at the end of the meal, and that really is the very best time to eat sweet food. Candy taken after the noon meal is candy taken at the very best time for child or adult. If then, we are to have a bit of sweet at the end of the dinner, what shall it be? In the majority of cases, the simple dessert of fresh fruit with sugar is the most wise choice. In the absence of fresh fruit, the canned or preserved fruit, with a simple cake or with bread and butter is an ideal dessert for the children of the family and no less desirable for the adults of the household.

It is true that we sometimes want the pie, or the rich pudding; but for the regular diet, the simple sweet is better economy, because it saves time in preparation, saves the digestion of the family, and more than that, it saves the strength of the housekeeper.

The custards given in connection with the egg lessons, are excellent as desserts and may be served in a variety of combinations. The boiled custard in connection with tapioca appears as tapioca cream and is a very simple, yet acceptable dessert.

#### Tapioca Cream.

$\frac{1}{4}$  cup tapioca.

2 eggs.

$\frac{1}{4}$  teaspoonful salt.

2 cups scalded milk.

1-3 cup sugar.

1 teaspoonful vanilla.

Wash and pick over tapioca and soak one hour in cold water. Drain and add to scalded milk, cook in double boiler until tapioca is transparent. Beat yolks of eggs, add to sugar and pour slowly into milk and stir constantly. Cook until the mixture thickens. Cool slightly and add flavoring and beaten whites to the cooked yolks.

## Apple Snow.

- 2 cups cooked apple pulp.
- $\frac{1}{2}$  cup sugar.
- 2 eggs.
- 1 teaspoonful cinnamon.

Beat yolks. Add apple and sugar. Cook until the mixture thickens. Add cinnamon. Cool slightly and add beaten whites and yolks. Cook until thick and add  $\frac{1}{4}$  teaspoonful cinnamon, 1 tablespoonful of butter and a few gratings of nutmeg.

## Baked Apples.

Pare and core firm and medium sized apples. Fill the cavity with brown sugar and cinnamon. Cover with sauce as soon as soft.

## Sauce.

- $\frac{3}{4}$  cup brown sugar.
- $\frac{1}{4}$  cup water.
- 2 tablespoonfuls butter.
- $\frac{1}{4}$  teaspoonful cinnamon.

Boil sugar and water to a thick syrup. Add butter and cinnamon.

## Apple Short Cake.

- $1\frac{1}{2}$  cups flour.
- 4 teaspoonfuls baking powder.
- 1-3 cup butter.
- $\frac{1}{2}$  cup corn starch.
- $\frac{1}{2}$  teaspoonful salt.
- $\frac{3}{4}$  cup milk.

Sift dry ingredients and work in the butter thoroughly. Add the milk gradually until a soft dough is made. Divide the dough into two equal parts. Roll one piece until  $\frac{1}{2}$  inch thick. Cut it to fit a pie tin and butter the top of the dough. Roll and cut the other piece of dough to match the first and place it upon the first piece in the pie tin. Bake in a hot oven and separate the two parts. Serve with apple sauce between, and on top.

## Apple Sauce.

Pare and quarter six apples. Steam until soft and press through a sieve. Add them gradually to two beaten eggs and  $\frac{1}{2}$  cup sugar.

## Chocolate Pudding.

- 3 egg whites.
- 3 squares of chocolate.
- $\frac{1}{2}$  cup corn starch.
- $\frac{1}{2}$  teaspoonful lemon.
- $\frac{1}{2}$  teaspoonful vanilla.
- $\frac{1}{4}$  cup sugar.
- $\frac{1}{4}$  teaspoonful salt.
- 4 cups hot milk.

Mix dry ingredients and blend with a little cold milk, adding milk gradually. Melt chocolate over hot water and add hot milk gradually. Combine with the other mixture and cook for fifteen minutes, stirring constantly at first. Add flavoring and beaten whites and place in a mould, to harden. Serve with sugar and cream.

## BEVERAGES.

## Water.

The beverage which deserves first place is water. A thorough internal cleansing by means of water, is as necessary as a thorough external cleansing. A glass of cold water the first thing in the morning and the same amount the last thing at night should be taken regularly. Beside this, at least six glasses should be taken during the day. Water which is moderately cold is much more desirable than ice water. This is especially true if water is to be taken with meals. Digestion is a chemical process, and one of the necessary conditions, which aids chemical action, is heat. Ice water lowers the temperature of the stomach and retards digestion. If ice water is to be used at any time, it should be prepared by placing the ice around the water rather than in it, or by placing the vessel of water in the ice box. The freezing of water does not kill the germs which exist in impure water. It simply retards their growth. It follows then, that ice, which is impure water in a frozen state, remains impure and is unfit for food. Artificial ice which is made from pure water is much more desirable than natural ice.

Hot water taken as a beverage is slightly laxative and is also beneficial in cases of indigestion especially if taken at least a half hour before meals.

## Milk.

Milk is commonly considered as a beverage but should be classed as a food. Milk contains from three to five per cent. of fat, about five per cent. of sugar and three per cent. of muscle-forming food called caseine. It contains a small amount of mineral matter and 87 per cent. of water. Because of its composition, milk is spoken of as a perfect food, and it is a perfect food for infants and for some classes of invalids.

Milk becomes a solid as soon as taken into the stomach, and for this reason it should be taken in sips rather than drunk hastily like water. If milk is taken slowly the caseine forms small flakes of solid curd rather than large lumps and is more easily digested. Milk should not be taken as a beverage in connection with a heavy dinner. The dinner supplies a sufficient amount of fat, starch, sugar, mineral matter and muscle-forming food, without the aid of milk—but still more important reason for abstaining from milk at this time is the fact that the digestion of the heavy meal causes the accumulation of acid to such an extent that the milk cannot be properly digested in that strong acid medium.

If the purity of milk is doubted, the wise precaution is to heat it to 170 degrees, and to keep it at that temperature for twenty minutes. Milk which is boiled is made more difficult of digestion than milk which is heated as suggested.

Doubtful milk is, of course, particularly unsafe for infants and invalids, and it is true that milk which might safely be taken by the adult in perfect health, would be extremely unsafe for the child or the adult in delicate health.

#### Coffee.

Coffee is not a food, but a stimulant. It should not be given to children and should be taken in moderation by adults. The adult who feels that he cannot do his day's work without the aid of three or four cups of coffee, is the person who should give it up altogether and produce the necessary energy by the use of proper food rather than to spur the organs of the body to an overwork which must result in a weakened condition of these organs. The person who lacks strong nerve control should not drink coffee. The person with questionable heart action should not drink coffee.

Coffee contains caffeine and tannic acid, as well as an extract that gives the flavor. Caffeine is a strong stimulant and tannic acid retards digestion, consequently we are careful to extract as small a per cent. of these substances as possible, during the process of coffee making. Long boiling does extract both caffeine and tannic acid and is for that reason the most undesirable method of preparing the beverage.

#### Precautions.

Soak the ground coffee in cold water for one-half hour, in order that the flavor shall be extracted. Scald coffee hot thoroughly. Simply allow coffee to reach the boiling point. If coffee is to be used for the second meal, drain the infusion from the ground and reheat when needed. Coffee without cream is less harmful than coffee with cream, owing to the fact that the tannic acid in the coffee acts upon the cream and makes it more difficult of digestion.



## Preparing Coffee.

- 1 cup coffee.
- 1 egg.
- 1 cup cold water.
- 5 cups boiling water.

Scald coffee pot thoroughly. Put in coffee and cold water. Allow coffee to soak  $\frac{1}{2}$  hour. Add egg and stir well. Bring to the boiling point and add boiling water. Allow mixture to reach the boiling point. Scrape grounds from sides and pour  $\frac{1}{4}$  cup cold water through spout. Let stand until coffee is clear.

## Tea.

Tea contains caffeine and tannic acid, and according to the experiments of Hutchison, one cup of tea contains about the same amount of caffeine and tannic acid as does one cup of coffee. Black tea has only about one-half as much tannic acid as green tea.

The same precaution with regard to boiling holds good in the making of tea as in the case of coffee. Tea should not be boiled. Tea should be drained from the leaves as soon as the infusion is sufficiently strong. Tea without cream is less harmful than tea with cream. Children should not drink tea.

## Preparing Tea.

- 3 teaspoonfuls tea.
- 4 cups boiling water.

Scald tea pot thoroughly. Place tea in pot and add boiling water. Allow to stand without boiling for five minutes. Strain and serve.

## Iced Tea.

Follow the tea recipe, adding to it one orange cut in quarters and six cloves. Strain and cool in the ice box. Serve with a thin slice of orange and one clove to each cup. Sweeten as desired.

## Cocoa.

Cocoa ranks high in food value. It is rich in fat and sugar, and for that reason is best as a beverage with a light meal rather than a heavy one. Cocoa is not of especial value for the person of weak digestion, because the large amount of fat it contains makes it rather difficult of digestion.

For active workers and for growing school children, cocoa is a most valuable beverage.

## Preparing Cocoa.

- 2 tablespoonfuls cocoa.
- 2 tablespoonfuls sugar.
- $\frac{1}{8}$  teaspoonful cinnamon.
- 2 cups boiling water.
- 2 cups hot milk.

Mix dry ingredients and mix to soft paste with hot water. Add remaining water and cook ten minutes, without boiling. Add hot milk and beat vigorously.

#### Synopsis.

Water is first in rank as a beverage and is as important for the infant as for the adult.

Milk is a food and should be used with light meals.

Coffee and tea are stimulants and should be avoided by the person of weak heart as well as the nervous person.

Iced drinks, to excess, are injurious.

Cocoa is rich in food value, but too difficult of digestion for a weak digestive system.

#### VALUE OF FRUITS AS FOOD.

The importance of fruit in the daily diet is too often underestimated, and fruit is too often looked upon as a luxury rather than a necessity. Many farmers and other property owners look upon fruit raising as a waste of time and space. The truth of the matter is, that the thriving row of currant bushes, the well tended square of strawberry plants and the healthy apple orchard are all most efficient aids in promoting the good health of the family.

The nutritive value of fruits lies chiefly in the sugar that they contain. The fig, the raisin, the prune, the apple and the grape, are all fruits which are especially rich in nutritive value. The most important value of fruits in the diet is the laxative action which they possess, and this fact alone is a mighty argument in favor of the free use of fruit in the daily diet. The prune, the fig, the date, the peach and the apple are especially strong in their laxative tendency.

Fruits contain mineral salts which lessen the amount of acid in the system, and by so doing make kidney difficulties and rheumatism less liable. If this fact were more generally understood, and if the fact that an overuse of meats and other proteid foods has a tendency toward producing acid in the system, were also kept in mind, it must follow, that those diseases which are so caused, would not exist to such an extent as they now do exist.

Green fruits contain sugar and other substances in an undeveloped state and are unwholesome. Overripe fruits contain bacteria that have lodged in the broken skin, that did protect the fruit, and are for that reason more subject to fermentation. This is especially true in the case of young children and people of delicate digestion. If fruits are to enter so freely into the list of necessary food, they must be preserved in some way to last from season to season, and canning, drying and preserving are the methods commonly used.

## CANNING AND PRESERVING.

The presence of bacteria causes fermentation in fruit, if precautions are not taken. This fermentation is prevented by drying, by cold storage, by canning and by preserving. When fruit is to be preserved in any of these ways, the first precaution is to secure fruit that is free from all blemishes as well as fruit that is not overripe. Bruised fruit offers an opportunity for bacteria to lodge, and by their growth the fermentation is hastened.

## Canning.

The first precaution in canning fruit is to sterilize the jars thoroughly. To do this, place jars with covers and rubbers in a large pan with a folded, heavy towel under the jars to prevent breakage. Cover jars with cold water and allow it to heat until the boiling point is reached. The jars must remain covered with this hot water until the fruit is ready for them. The rubbers should be new and should be put into the boiling water just before using them. The tops should fit perfectly and should not be bent.

## To Prepare the Fruit.

Use one-third as much sugar, as fruit. To this sugar add two and one-half cups of water and boil until a thin syrup is made. Add the fruit and cook gently until soft.

## Filling the Jar.

Remove water and fill to overflowing with hot fruit. If the fruit is large, free the jar from air, by carefully pressing the pieces of fruit with a knife or spoon. Fermentation will occur if bacteria-laden air is allowed to remain in the jar. Place the hot covers on the jars and screw them down very tightly. Invert the jars and allow them to stand for twenty-four hours. After this length of time, turn the jars right side up and if any of the liquid has oozed from the jar, open the jar and repeat the whole canning process. If the cover is loose enough to allow the escape of liquid, it is loose enough to allow the entrance of enough air to cause fermentation. These precautions, faithfully carried out, will ensure the safe keeping of canned fruits or vegetables, without the aid of any canning compound or other undesirable preservative.

## Preserving.

Preserving fruit is cooking it with from three-fourths, to an equal amount, by weight, of sugar. Allow one cup of water to each pound of sugar and cook sugar and water to a thick syrup. Add fruit and cook until the fruit is soft and not washed. Place in glass or earthen jars. The large per cent. of sugar used in preserving fruit prevents



the danger of fermentation, consequently secure sealing is not necessary. Bacteria do not grow in any substance containing a large amount of sugar, but they thrive in all foods containing a small amount.

#### Rhubarb Preserves.

- 1 lb. fresh rhubarb.
- $1\frac{1}{2}$  lb. sugar.
- $1\frac{1}{2}$  cup water.
- $\frac{1}{2}$  lb. sliced pineapple.
- $\frac{1}{2}$  lemon.

Cook sugar and water to a thick sugar, add rhubarb which has been cut into inch pieces, add sliced pineapple with each slice cut into quarters, add bits of lemon, cut into thin slices, cook until the fruit is soft and place in glass or earthen jars.

#### Jelly.

The stiffening of jelly is due to the pectin in the fruit. This substance exists in the highest per cent. and in the best conditions in underripe fruit. For this reason, fruits to be used for jelly, should be a little less than ripe.

Pectin thickens the jelly less readily if the fruit is overcooked. Long cooking causes that syrupy condition which is sometimes seen in jelly. The pectin has been killed by long cooking. Jelly may be made from raw fruit if very juicy fruit is used, but the more pulpy fruits, like apples, should be cooked.

#### Currant Jelly.

Pick over currants and wash them carefully. Drain all water from them and mash, to remove the juice. Hang a cheese cloth jelly bag some distance above the table and over an earthen bowl. Place the mashed fruit over the bowl and allow the juice to drip through. A jelly bag should never be squeezed. This method of squeezing forces the pulp through and gives the jelly a cloudy look. Boil juice five minutes and add three-fourths the amount of heated sugar. Boil again for three minutes and be careful to skim all froth from the top, pour into sterile glasses and let stand until firm, cover with melted paraffine and set in a cool, dry place.

This method covers the making of jelly from all small fruits, like the strawberry, raspberry, grape, or cherry. If jelly is to be made from the apple, quince, peach, plum or cranberry, it is necessary to cook the fruit first and after that, follow the directions given, being careful in each case, not to squeeze the pulp through the bag.

Fruits vary in the amount of pectin they contain, and the apple stands first in pectin. For this reason, grape, peach and rhubarb jelly are often made by using one-fourth as much apple as of the other fruit used.

## Precautions.

Do not allow pulp to mix with juice.

Do not use too much sugar.

Do not cook too long. Long cooking after the sugar is added causes a strong, disagreeable flavor.

Use sterile glasses.

Do not use over-ripe fruits.

Cover to exclude air.

Keep in a cool place.

## SERVING OF MEALS.

The eye and the digestive system are both under the same control. The nervous system directs the action of both, and what pleases the one pleases the other. No meal is a success unless the linen is clean, the table neatly set and the food neatly served.

The very sight of grandmother's mince pie made the "mouth water," because it first pleased the eye. It was plump and brown and flaky.

Your breakfast of toast, eggs and coffee pleases you exactly because they are well cooked in the first place, and because they are served from neat dishes on an attractive table, in the second place.

Try a breakfast of toast, eggs and coffee at some dingy lunch room and see if you like it as well, with heavy cracked dishes, soiled table cloth, no napkin and flies without number.

The most valuable among the early housekeeping lessons, is the art of table setting and it is a lesson that every child of ten should have mastered. This, like every other lesson, must be taught logically and systematically. Definite instructions must be given.

## Table Setting. (Silence Cloth.)

Cover the table with a Silence Cloth. This may consist of heavy cotton flannel, of regular table padding or of an old table cloth, but whatever is used improves the appearance of the table, prevents the discoloration of the table from hot dishes, prevents noise and saves the table cloth from wear.

## Table Cloth.

A cloth of plain material, with small figures at intervals, showing the plain material between, shows a very pleasing contrast between the figure and the plain space, after the cloth is well ironed. The effect is very much better than when a cloth having a heavy all-over pattern is chosen. The cloth should be large enough to cover the table and fall from ten to twelve inches below the edge of the table. A cloth which is too long makes unnecessary work and costs more money than is necessary.

The child who learns to lay the cloth straight, with a perfectly equal margin on all sides of the table, will always lay it just so carefully after the habit is once fixed.

## Placing of Dishes. (See Frontispiece.)

The silver is placed one inch from the edge of the table, the different pieces being laid parallel with each other. The knives and spoons are placed at the right of the plate and the forks at the left. The knife blade should be turned toward the plate and the tines of the fork should be turned upward. The knife or spoon to be used first is at the extreme right, and from that they are placed in the order in which they are to be used. The fork to be used first is placed at the extreme left, and from that they are placed in the order in which they are to be used.

If an oyster fork is to be used in the first course at a formal dinner, that may be placed at the extreme right of the knives and spoons. The glass is placed at the tip of the knife. If two glasses are used, they are placed side by side in a line that is parallel with the edge of the table.

The napkin is placed at the left of the plate, one inch from the edge of the table. The open corner of the napkin should be the lower right corner of the napkin when lying in position beside the fork.

The bread and butter plate, or the butter chip, should occupy the space just above the napkin.

A simple bouquet of some sort, adds good cheer to the table, and such a bouquet is possible at almost all seasons of the year. A low dish is preferable to a high one, and a small bouquet to a large one.

It is an excellent thing for children to learn to wait upon the table, and to do it well. This lesson not only makes them useful, but it teaches them to be more unselfish and more considerate of the comfort of others.

If a company dinner is being served, and one of the young daughters is to do the serving, fix a few directions firmly in her mind. Tell her to pass to the right of the guest if the food is to be set in place by the child. Tell her to pass to the left of the guest if the food is to be offered for the guest to help herself, this leaves the right hand of the guest free when the right hand is needed. Caution the child to lower the dish within easy reach when passing food to a guest. Tell the child to pass to the right of the guest when she wishes to remove dishes from the table.

If glasses are filled at the table, be careful to fill only to one inch from the top. Take the same precaution in filling cups with any beverage or dishes with any liquid food.

In serving plates, do not fill them to the point of over-loading, but rather give the members of the family a chance for a second helping if they desire.

In general, let the meal time be a rest-time, where cleanliness, good taste, good simple food and harmony and good manners prevail.